

Analytical Data Package Prepared For  
**CH2M Hill Plateau Remediation**

Radiochemical Analysis By  
**TestAmerica Inc**

*2800 G.W. Way, Richland Wa, 99354, (509)-375-3131.*

Assigned Laboratory Code: TARL

*Data Package Contains 19 Pages*

Report No.: 60120

Results in this report relate only to the sample(s) analyzed.

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
W06716	F14-017	B2WL42	J4E070408-1	M3NMQ1AA	9M3NMQ10	4127087
		B2WL52	J4E070408-2	M3NMR1AA	9M3NMR10	4127087



## Certificate of Analysis

CH2M Hill Plateau Remediation Company  
 P.O. Box 1600  
 Mail Stop – R3-60  
 Richland, WA 99352

May 12, 2014

Attention: Scot Fitzgerald

SAF Number	:	F14-017
Date SDG Closed	:	May 7, 2014
Number of Samples	:	Two (2)
Sample Type	:	Soil
SDG Number	:	W06716
Data Deliverable	:	3 Day / 15 Day Summary

### **CASE NARRATIVE**

#### **I. Introduction**

On May 7, 2014, two soil samples were received at TestAmerica (TARL). Upon receipt, the samples were assigned the following laboratory ID numbers to correspond with the CH2M specific ID:

<b><u>CH2M ID#</u></b>	<b><u>TARL ID#</u></b>	<b><u>DATE OF RECEIPT</u></b>	<b><u>MATRIX</u></b>
B2WL42	M3NMQ	5/7/14	SOIL
B2WL52	M3NMR	5/7/14	SOIL

#### **II. Sample Receipt**

The samples were received in good condition and no anomalies were noted during check-in.

#### **III. Analytical Results/Methodology**

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information, analytical results and the appropriate associated statistical errors.

CH2M Hill Plateau Remediation Company  
May 12, 2014

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The requested analyses were:

**Chemical Analysis**  
Hexavalent Chromium by EPA method 7196A

**IV. Quality Control**

The analytical results for each analysis performed includes a minimum of one laboratory control sample (LCS), one method (reagent) blank, and one duplicate sample analysis. Any exceptions have been noted in the "Comments" section.

QC and sample results are reported in the same units.

**V. Comments**

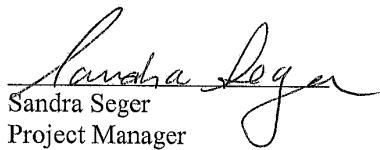
**Chemical Analysis**

Hexavalent Chromium by EPA method 7196A

The LCS, batch blank, samples, sample duplicate (B2WL42) and sample matrix spike (B2WL42) results are within contractual requirements.

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager, or a designee as verified by the following signature.

Reviewed and approved:

  
Sandra Seger  
Project Manager

### Drinking Water Method Cross References

DRINKING WATER ASTM METHOD CROSS REFERENCES		
Referenced Method	Isotope(s)	TestAmerica Richland's SOP No.
EPA 901.1	Cs-134, I-131	RL-GAM-001
EPA 900.0	Alpha & Beta	RL-GPC-001
EPA 00-02	Gross Alpha (Coprecipitation)	RL-GPC-002
EPA 903.0	Total Alpha Radium (Ra-226)	RL-RA-002
EPA 903.1	Ra-226	RL-RA-001
EPA 904.0	Ra-228	RL-RA-001
EPA 905.0	Sr-89/90	RL-GPC-003
ASTM D5174	Uranium	RL-KPA-003
EPA 906.0	Tritium	RL-LSC-005

**Results in this report relate only to the sample(s) analyzed.**

### Uncertainty Estimation

TestAmerica Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship,  $R = \text{constants} * f(x,y,z,...)$ . The components (x,y,z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties ( $u_i$ ) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty ( $u_c$ ) multiplied by the coverage factor (1,2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value ( $S/\sqrt{n}$ ), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

## Report Definitions

<b>Action Lev</b>	An agreed upon activity level used to trigger some action when the final result is greater than or equal to the Action Level. Often the Action Level is related to the Decision Limit.
<b>Batch</b>	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
<b>Bias</b>	Defined by the equation (Result/Expected)-1 as defined by ANSI N13.30.
<b>COC No</b>	Chain of Custody Number assigned by the Client or TestAmerica.
<b>Count Error (#s)</b>	Poisson counting statistics of the gross sample count and background. The uncertainty is absolute and in the same units as the result. For Liquid Scintillation Counting (LSC) the batch blank count is the background.
<b>Total Uncert (#s) <math>u_c</math> - Combined Uncertainty.</b>	All known uncertainties associated with the preparation and analysis of the sample are propagated to give a measure of the uncertainty associated with the result, $u_c$ the <i>combined uncertainty</i> . The uncertainty is absolute and in the same units as the result.
<b>(#s), Coverage Factor</b>	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
<b>CRDL (RL)</b>	Contractual Required Detection Limit as defined in the Client's Statement Of Work or TestAmerica "default" nominal detection limit. Often referred to the reporting level (RL)
<b>Lc</b>	Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume associated with the sample. The Type I error probability is approximately 5%. $Lc = (1.645 * \sqrt{2 * (\text{BkgndCnt} / \text{BkgndCntMin}) / \text{SCntMin}}) * (\text{ConvFct} / (\text{Eff} * \text{Yld} * \text{Afn} * \text{Vol}) * \text{IngrFct})$ . For LSC methods the batch blank is used as a measure of the background variability. Lc cannot be calculated when the background count is zero.
<b>Lot-Sample No</b>	The number assigned by the LIMS software to track samples received on the same day for a given client. The sample number is a sequential number assigned to each sample in the Lot.
<b>MDC MDA</b>	Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume with a Type I and II error probability of approximately 5%. $MDC = (4.65 * \sqrt{((\text{BkgndCnt} / \text{BkgndCntMin}) / \text{SCntMin}) + 2.71 / \text{SCntMin})} * (\text{ConvFct} / (\text{Eff} * \text{Yld} * \text{Afn} * \text{Vol}) * \text{IngrFct})$ . For LSC methods the batch blank is used as a measure of the background variability.
<b>Primary Detector</b>	The instrument identifier associated with the analysis of the sample aliquot.
<b>Ratio U-234/U-238</b>	The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is 1.038.
<b>Rst/MDC</b>	Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
<b>Rst/TotUcert</b>	Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than 1 may indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
<b>Report DB No</b>	Sample Identifier used by the report system. The number is based upon the first five digits of the <b>Work Order Number</b> .
<b>RER</b>	The equation Replicate Error Ratio = $(S-D)/[\sqrt{TPUs^2 + TPUs^2}]$ as defined by ICPT BOA where S is the original sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUs is the total uncertainty of the duplicate sample.
<b>SDG</b>	Sample Delivery Group Number assigned by the Client or assigned by TestAmerica upon sample receipt.
<b>Sum Rpt Alpha Spec Rst(s)</b>	The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where the results are in the same units.
<b>Work Order</b>	The LIMS software assign test specific identifier.
<b>Yield</b>	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

**Sample Results Summary**  
**TestAmerica Inc TARL**  
 Ordered by Method, Batch No., Client Sample ID.

Date: 12-May-14

Report No. : 60120

SDG No: W06716

Client Id Batch	Work Order	Parameter	Result +- Uncertainty ( 2s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
<b>4127087 7196_CR6</b>									
<b>B2WL42</b>									
M3NMQ1AA HEXCHROME			4.20E+00	+- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01
M3NMQ1AD HEXCHROME			4.24E+00	+- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01
<b>B2WL52</b>									
M3NMR1AA HEXCHROME			5.33E-01	+- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01
<b>No. of Results:</b> 3									

TestAmerica Inc RPD - Relative Percent Difference.

rptTALRchSaSum  
 mary2 V5.3.2  
 A2002

**QC Results Summary**  
**TestAmerica Inc TARL**  
 Ordered by Method, Batch No, QC Type,.

Date: 12-May-14

Report No. : 60120

SDG No.: W06716

Batch	Work Order	Parameter	Result +/- Uncertainty ( 2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
<b>7196_CR6</b>									
	4127087	MATRIX SPIKE, B2WL42							
	M3NMQ1AC	HEXCHROME	3.49E+01 +/- 0.0E+00		mg/kg	N/A	92%	-0.1	1.55E-01
	4127087	BLANK QC,							
	M3NV41AA	HEXCHROME	1.55E-01 +/- 0.0E+00	U	mg/kg	N/A			1.55E-01
	4127087	LCS,							
	M3NV41AC	HEXCHROME	1.91E+01 +/- 0.0E+00		mg/kg	N/A	96%	0.0	1.55E-01
<b>No. of Results:</b> 3									

TestAmerica Inc Bias - (Result/Expected)-1 as defined by ANSI N13.30.

rptSTLRchQcSum U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or  
mary V5.3.2 A2002 not identified by gamma scan software.

**FORM I**

**SAMPLE RESULTS**

Date: 12-May-14

Lab Name: TestAmerica Inc  
 Lot-Sample No.: J4E070408-1  
 Client Sample ID: B2WL42

SDG: W06716  
 Report No.: 60120  
 COC No.: F14-017-147

Collection Date: 5/6/2014 12:53:00 PM  
 Received Date: 5/7/2014 9:12:00 AM  
 Matrix: SOIL

Parameter	Result	Count	Total	MDL <sub>x</sub>	Rpt Unit,	Yield	Rst/MDL <sub>x</sub>	Analysis,	Total Sa	Aliquot	Primary
	Qual	Error (2 s)	Uncert(2 s)	Action Lev	Lc	CRDL(RL)	Rst/TotUncert	Prep Date	Size	Size	Detector
Batch: 4127087 HEXCHROME	7196_CRG <b>4.20E+00</b>	Work Order: M3NNMQ1AA 0.0E+00	Total: 1.55E-01	MDL: mg/kg	Report DB ID: 9M3NNMQ10 N/A	Yield: N/A	Rst/MDL: (27.1) 1.55E-01	Analysis, Prep Date: 5/8/14 N/A	Total Sa Size: 5/8/14 N/A	Aliquot Size: 2.5 g	Primary Detector:

No. of Results: 1      Comments:

**FORM I**  
**SAMPLE RESULTS**

Date: 12-May-14

Lab Name: TestAmerica Inc  
 Lot-Sample No.: J4E070408-2  
 Client Sample ID: B2WL52

SDG:	W06716			Collection Date:	5/6/2014 2:32:00 PM		
Report No.:	60120			Received Date:	5/7/2014 9:12:00 AM		
COC No.:	F14-017-157			Matrix:	SOIL		
Ordered by Client Sample ID, Batch No.							
Parameter	Result	Count	Total	MDL, Action Lev	Rpt Unit, Lc	Yield	Rst/MDL, Rst/Tot/Cert
Batch: 4127087	7196_OR6	Uncert( 2 s)	Work Order: M3NMR1AA	CRDL(RL)	Rst/Tot/Cert	Analysis, Prep Date	Total Sa Size
HEXCHROME	<b>5.33E-01</b>	0.0E+00	0.0E+00	1.55E-01	mg/kg	N/A	(3.4)
No. of Results:	1	Comments:		1.55E-01	N/A	5/8/14	2.5
							g

FORM II Date: 12-May-14

### DUPLICATE RESULTS

**Lab Name:** TestAmerica Inc  
**Lot-Sample No.:** J4E070408-1  
**Client Sample ID:** B2WL42

**SDG:** W06716  
**Report No. :** 60120  
**COC No. :** F14-017-147

Parameter	Result, Orig Rst	Count	Total	MDL, Action Lev	Rpt Unit, CRDL	Rst/MDL, Yield	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 4127087	7196_CR6	Work Order: M3NMQ1AD		Report DB ID: M3NMQ1DR		Orig Sa DB ID: 9M3NMQ10				
HEXCHROME	4.24E+00	0.0E+00	1.55E-01	mg/kg	N/A	(27.4)	5/8/14	2.5		
	4.20E+00	RPD 0.9			1.55E-01	N/A				g

No. of Results: 1 Comments:

**FORM II**  
**BLANK RESULTS**

Date: 12-May-14

Lab Name: TestAmerica Inc  
 Matrix: SOIL

Parameter	Result	Qual	Count	Total Uncert(2 s)	MDL, Lc	Rpt Unit, CRDL	Rst/MDL, Yield	Rst/MDL, Cert	Report DB ID: M3NV41AB	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 4127087	7196_CR6												
HEXCHROME	1.55E-01	U	0.0E+00	1.55E-01	mg/kg	N/A	(1.)	N/A	5/8/14		2.5	g	

No. of Results: 1      Comments:

**FORM II**  
**LCS RESULTS**

Date: 12-May-14

**Lab Name:** TestAmerica Inc  
**Matrix:** SOIL

**SDG:** W06716  
**Report No. :** 60120

Parameter	Result	Count	Total	Report	Yield	Expected	Recovery,	Analysis,	Aliquot	Primary
		Qual	Uncert(2 s)	Unit		Uncert	Bias	Prep Date	Size	Detector
Batch: 4127087	7196_CR6			Work Order: M3NV41AC				Report DB ID: M3NV41AS		
HEXCHROME	1.91E+01	0.0E+00	1.55E-01	mg/kg	N/A	2.00E-01		96%	5/8/14	2.5

No. of Results: 1      Comments:

**FORM II**  
**MATRIX SPIKE RESULTS**

Date: 12-May-14

Lab Name: TestAmerica Inc  
 Lot-Sample No.: J4E070408-1, B2WL42

SDG: W067716  
 Report No.: 60120

Parameter	SpikeResult, Orig Rst	Count	Total Uncert(2 s)	MDC/MDA	Rpt Unit	Yield	Rec- covery	Expected, Uncert	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 4127087	Work Order: M3NM/Q1AC		Report DB ID: M3NMQ1CW	0.0E+00	1.55E-01 mg/kg	N/A	92.37%	3.78E+01	5/8/14	2.5	7196_CBG6
HEXCHROME	3.49E+01	4.20E+00								g	

Number of Results: 1

Comments:

TestAmerica Inc      RER - Replicate Error Ratio =  $(S-D)/[\sqrt{sq(TPUs)+sq(TPUs)}]$  as defined by ICPT BOA.  
 rptSTLRchMs      Bias - (Result/Expected)-1 as defined by ANSI N13.30.  
 V5.3.2 A2002

**Richland Laboratory**  
**Data Review Check List**  
**Hexavalent Chromium**

Batch Number(s):	4127087	Lab Sample Numbers or SDG:	W06716		
Method/Test/Parameter: Cr+6 <input type="checkbox"/> RL-WC-003(Aqueous) <input checked="" type="checkbox"/> RL-WC-004(Solid)					
Review Item	Yes (✓)	No (✗)	N/A (✗)	2 <sup>nd</sup> Level Review (✓)	
<b>A. Initial Calibration</b>					
1. Performed at required frequency with required number of levels?	✓			✓	
2. Correlation coefficient greater than 0.97?	✓			✓	
3. Initial calibration verification (ICV) analyzed immediately after calibration and results within 10% of expected?	✓			✓	
4. Initial calibration blank (ICB) analyzed immediately after ICV and concentrations of all parameters $\leq$ reporting limit?	✓			✓	
<b>B. Continuing Calibration</b>					
1. CCV analyzed at required frequency and all parameters within 10% of expected?	✓			✓	
2. CCB analyzed at required frequency and all results $\leq$ reporting limit?	✓			✓	
<b>C. Sample Analysis</b>					
1. Were any samples with concentrations above the linear range diluted and reanalyzed?			✓		✓
2. Were all sample holding times met?	✓			✓	
<b>D. QC Samples</b>					
1. All results for the preparation blank below limits?	✓			✓	
2. LCS percent recovery within 85-115%	✓			✓	
3. PbCrO <sub>4</sub> percent recovery within 75-125%?	✓			✓	
4. Sample and Duplicate within 20% (aqueous) or 35% (solid) RPD?	✓			✓	
5. MS or MS/MSD recoveries within 85-115% (aqueous) or 75-125% (solid)?	✓			✓	
6. On MS failure, PDMS within 85-115%?			✓		✓
<b>E. Other</b>					
1. Are all nonconformances included and noted?			✓		✓
2. Is the correct date and time of analysis shown?	✓			✓	
3. Did the analyst sign and date the front page of the analytical run?	✓			✓	
4. Correct methodology used?	✓			✓	
5. Transcriptions checked?	✓			✓	
6. Calculations checked at minimum frequency?	✓			✓	
7. Units checked?	✓			✓	

Comments on any "No" response or list NCM number:

Analyst H. RahbariDate 5/9/14 2<sup>nd</sup> ReviewH. RahbariDate 5/9/14

		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F14-017-147	PAGE 1 OF 1
<b>COLLECTOR</b>	Katrina Lacy	<b>COMPANY CONTACT</b>	TODAK, D	<b>TELEPHONE NO.</b>	376-6427	
<b>SAMPLING LOCATION</b>		<b>PROJECT DESIGNATION</b>			<b>PROJECT COORDINATOR</b>	
C8953, T-001		100-D-100 Waste Site - Waste Sampling			TODAK, D	
<b>ICE CHEST NO.</b>		<b>FIELD LOGBOOK NO.</b>	INF-N-507-26-23	<b>ACTUAL SAMPLE DEPTH</b>	COA	
<b>SHIPPED TO</b>		<b>OFFSITE PROPERTY NO.</b>			<b>SAF NO.</b>	
TestAmerica Incorporated, Richland		SEE PIR			F14-017	
<b>MATRIX*</b>		<b>Possible Sample Hazards/ Remarks</b>			<b>PRESERVATION</b>	Cool~4°C
A=Air Dl=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WT=Wipe X=Other		*Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/ATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.			<b>HOLDING TIME</b>	30 Days
					<b>TYPE OF CONTAINER</b>	G/P
					<b>NO. OF CONTAINER(S)</b>	1
					<b>VOLUME</b>	120mL
					<b>SAMPLE ANALYSIS</b>	7196-C6: COMMON;
<b>SAMPLE NO.</b>	<b>MATRIX*</b>	<b>SAMPLE DATE</b>	<b>SAMPLE TIME</b>			
B2WL42	SOIL	5-6-14	1253			

RELINQUISHED BY/REMOVED FROM <i>Edna E. Lacy</i>	DATE/TIME 5-6-14 1530	RECEIVED BY/STORED IN 550 1st St. May 1 2014 1530	DATE/TIME 5-6-14 1530
RELINQUISHED BY/REMOVED FROM <b>SSU-1</b>	DATE/TIME MAY 07 2014 0750	RECEIVED BY/STORED IN FM Hall May 07 2014 0750	DATE/TIME MAY 07 2014 0750
RELINQUISHED BY/REMOVED FROM <i>CHPRC</i>	DATE/TIME MAY 07 2014 0912	RECEIVED BY/STORED IN 550 1st St. May 07 2014 0912	DATE/TIME MAY 07 2014 0912
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

<b>CHAIN OF POSSESSION</b>		<b>SIGN/ PRINT NAMES</b>		<b>SPECIAL INSTRUCTIONS</b>	
RELINQUISHED BY/REMOVED FROM <i>Edna E. Lacy</i>	DATE/TIME 5-6-14 1530	RECEIVED BY/STORED IN 550 1st St. May 1 2014 1530	DATE/TIME 5-6-14 1530	TRVL-14-085** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.** The 3-day preliminary TAT starts from prep of the samples. The Laboratory Project Manager will notify the Project Coordinator and send an e-mail to ^CPP Sample Management when each batch is started.	
RELINQUISHED BY/REMOVED FROM <b>SSU-1</b>	DATE/TIME MAY 07 2014 0750	RECEIVED BY/STORED IN FM Hall May 07 2014 0750	DATE/TIME MAY 07 2014 0750		
RELINQUISHED BY/REMOVED FROM <i>CHPRC</i>	DATE/TIME MAY 07 2014 0912	RECEIVED BY/STORED IN 550 1st St. May 07 2014 0912	DATE/TIME MAY 07 2014 0912		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
<b>LABORATORY SECTION</b>	<b>RECEIVED BY</b>	<b>TITLE</b>	<b>DATE/TIME</b>		
<b>FINAL SAMPLE DISPOSITION</b>	<b>DISPOSAL METHOD</b>	<b>DISPOSED BY</b>	<b>DATE/TIME</b>		

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F14-017-157		PAGE 1 OF 1				
COLLECTOR	Karen Flock	COMPANY CONTACT	TODAK, D	TELEPHONE NO.	376-6427	PROJECT COORDINATOR	TODAK, D	PRICE CODE	8A	DATA TURNAROUND	3 Days / 15 Days
SAMPLING LOCATION	C8953, T-003	PROJECT DESIGNATION	100-D-100 Waste Site - Waste Sampling	SAF NO.	F14-017	AIR QUALITY	<input type="checkbox"/>				
ICE CHEST NO.		FIELD LOGBOOK NO.	HNF-N507-2C-83	ACTUAL SAMPLE DEPTH	15.55 ft (L.S.)	COA	303466FS10	METHOD OF SHIPMENT	GOVERNMENT VEHICLE		
SHIPPED TO	TestAmerica Incorporated, Richland	OFFSITE PROPERTY NO.				BILL OF LADING/AIR BILL NO.		ORIGINAL			
		SEE PTR				SEE PTR					

POSSIBLE SAMPLE HAZARDS / REMARKS		PRESERVATION		Cool~4C	
*Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR/ IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.		HOLDING TIME		30 Days	
		TYPE OF CONTAINER		G/P	
		NO. OF CONTAINER(S)		1	
		VOLUME		120mL	
SPECIAL HANDLING AND/OR STORAGE		SAMPLE ANALYSIS		7196-CRS: COMMON	
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	101300mR	
B2WL52	SOIL	5-6-14	1432	~	

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <i>El Kicker et al 5-6-14</i>	DATE/TIME 16:30	RECEIVED BY/STORED IN <i>SSU 14</i>	DATE/TIME 15-6-14	TRVL-14-085** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.** The 3-day preliminary TAT starts from prep of the samples. The Laboratory Project Manager will notify the Project Coordinator and send an e-mail to ^CPP Sample Management when each batch is started.	
RELINQUISHED BY/REMOVED FROM <i>FM Hall</i>	DATE/TIME MAY 07 2014 0756	RECEIVED BY/STORED IN <i>FM Hall</i>	DATE/TIME MAY 07 2014 0756		
RELINQUISHED BY/REMOVED FROM <i>CDP</i>	DATE/TIME MAY 07 2014 0913	RECEIVED BY/STORED IN <i>CDP</i>	DATE/TIME MAY 07 2014 0913		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
LABORATORY SECTION	RECEIVED BY			TITLE	
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD			DATE/TIME	
PRINTED ON 5/2/2014					

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## Sample Check-in List

Date/Time Received: 5-7-14 | 0912 Container GM Screen Result: (Airlock) 40 cpm Initials B  
 Sample GM Screen Result (Sample Receiving) 40 cpm Initials B

Client: FUH SDG #: WD 6716 SAF #: F14-017 NA [ ]

Lot Number: J4E0070408

Chain of Custody # F14-017-147; 157

Shipping Container ID or Air Bill Number: Hand de Out NA B/S

Samples received inside shipping container/cooler/box Yes  Continue with 1 through 4. Initial appropriate response.  
 No  Go to 5, add comment to #16.

1. Custody Seals on shipping container intact? Yes  No  No Custody Seal B
2. Custody Seals dated and signed? Yes  No  No Custody Seal B
3. Cooler temperature: 3.7 °C NA
4. Vermiculite/packing materials is NA B Wet  Dry

Item 5 through 16 for samples. Initial appropriate response.

5. Chain of Custody record present? Yes B No
6. Number of samples received (Each sample may contain multiple bottles): 2
7. Containers received: 2 x 120 ml

8. Sample holding times exceeded? NA  Yes  No B

9. Samples have:  tape  hazard labels B custody seals B appropriate sample labels

10. Matrix: B A (FLT, Wipe, Solid, Soil)  I (Water)  S (Air, Niosh 7400)  T (Biological, Ni-63)

11. Samples: B are in good condition  are leaking  are broken  
B have air bubbles (Only for samples requiring no head space)  Other \_\_\_\_\_

12. Sample pH appropriate for analysis requested Yes  No  NA B  
 (If acidification is necessary go to pH area & document sample ID, initial pH, amount of HNO<sub>3</sub> added and pH after addition on table)

13. Were any anomalies identified in sample receipt? Yes  No B

14. Description of anomalies (include sample numbers): NA B

15. Sample Location, Sample Collector Listed on COC? \* Yes B No

\*For documentation only. No corrective action needed.

16. Additional Information: W/JA

Client/Courier denied temperature check.

B/S Client/Courier unpack cooler.

Sample Check-in List completed by Sample Custodian:

Signature: D. Bosch

Date: 5-7-14

Client Notification needed? Yes  No B/S

Date: \_\_\_\_\_

By: \_\_\_\_\_

Person contacted: \_\_\_\_\_

B/S No action necessary; process as is

Project Manager

Lorraine Legor Date 5-7-14

Sample Preparation/Analysis										Balance Id:		
										Pipet #:		
										Sep1 DT/Tm Tech:		
										Sep2 DT/Tm Tech:		
Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Dish Yield	Ppt or Geometry	Count Time Min	Detector Id	Count On   Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 M3NMQ-1-AA												
J4E070408-1-SAMP												
05/06/2014 12:53					AmtRec: 1X120MLP		#Containers: 1					
2 M3NMQ-1-AC-S												
J4E070408-1-MS												
05/06/2014 12:53					AmtRec: 1X120MLP		#Containers: 1					
3 M3NMQ-1-AD-X												
J4E070408-1-DUP												
05/06/2014 12:53					AmtRec: 1X120MLP		#Containers: 1					
4 M3NMQ-1-AE-S	51CS 5-12-14											
J4E070408-1-MS												
05/06/2014 12:53					AmtRec: 1X120MLP		#Containers: 1					
5 M3NMR-1-AA												
J4E070408-1-MS												
05/06/2014 14:32					AmtRec: 1X120MLP		#Containers: 1					
6 M3NV4-1-AA-B												
J4E070000-87-BLK												
05/08/2014 08:02 pd					AmtRec:		#Containers: 1					
7 M3NV4-1-AC-C												
J4E070000-87-LCS												
05/08/2014 08:02 pd					AmtRec:		#Containers: 1					
TestAmerica	Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2	Page 1	ISV - Insufficient Volume for Analysis	WO Cnt: 7								
Richard W.	pd - Prep Dt, dc - Date Chg, r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added			ICOC v4.8.49								

Sample Preparation/Analysis								Balance Id:			
DW Alkaline Digestion by method 3060A EA Chromium, Hexavalent (7196A)								Pipet #:			
51 CLIENT: HANFORD								Sep1 DT/Tm Tech:			
AnalyDueDate: 05/12/2014		mg/kg						Sep2 DT/Tm Tech:			
Batch: 4127037		SEQ Batch, Test: None						Prep Tech:			
Work Ord. Lot, Sample Date	Total Amt/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count On   Off Id   (24hr) Circle	CR Analyst, Init/Date		
Comments:											
All Clients for Batch: 108302, CH2M Hill Plateau Remediation DOE RL <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>Flour Hanford Inc</td><td>/ RW2, 50639</td></tr> </table>										Flour Hanford Inc	/ RW2, 50639
Flour Hanford Inc	/ RW2, 50639										
M3NNMQ1AA-SAMP	Constituent List:										
HEXCHROME	RDL:0.1548	mg/kg	LCL:80	UCL:120	RPD:20						
M3NNMQ1AC-MS	Constituent List:										
HEXCHROME	RDL:0.35	mg/kg	LCL:75	UCL:125	RPD:20						
M3NNMQ1AE-MS:											
HEXCHROME	RDL:0.35	mg/kg	LCL:75	UCL:125	RPD:20						
M3NNV41AA-BLK:											
HEXCHROME	RDL:0.1548	mg/kg	LCL:	UCL:	RPD:						
M3NNV41AC-LCS:											
HEXCHROME	RDL:0.35	mg/kg	LCL:80	UCL:120	RPD:20						
M3NNMQ1AA-SAMP	Calc Info:										
Uncert Level (#s) .::	2	Decay to SdDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRS: B						
M3NNMQ1AC-MS	Calc Info:										
Uncert Level (#s) .::	2	Decay to SdDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRS: B						
M3NNMQ1AE-MS:											
Uncert Level (#s) .::	2	Decay to SdDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRS: B						
M3NNV41AA-BLK:											
Uncert Level (#s) .::	2	Decay to SdDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRS: B						
M3NNV41AC-LCS:											
Uncert Level (#s) .::	2	Decay to SdDt: Y	Blk Subt.: N	Sci.Not.: Y	ODRS: B						